



## Complete Summary

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### TITLE

Acute myocardial infarction: percent of patients who are prescribed a beta-blocker at hospital discharge.

### SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0c. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct 1. various p.

## Measure Domain

### PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

### SECONDARY MEASURE DOMAIN

Does not apply to this measure

## Brief Abstract

### DESCRIPTION

This measure is used to assess the percent of acute myocardial infarction (AMI) patients who are prescribed a beta-blocker at hospital discharge.

### RATIONALE

The use of beta-blockers for patients who have suffered an acute myocardial infarction (AMI) can reduce mortality and morbidity. Studies have demonstrated that the use of beta-blockers is associated with about a 20% reduction in this risk (Yusuf, 1985 and Yusuf, 1998), and there is evidence of effectiveness in broad populations of patients with AMI (Krumholz, 1998). National guidelines strongly recommend long-term beta-blocker therapy for the secondary prevention of subsequent cardiovascular events in patients discharged after AMI (Antman, 2004). Despite these recommendations, beta-blockers remain underutilized in eligible older patients discharged after AMI (Jencks, 2000).

## PRIMARY CLINICAL COMPONENT

Acute myocardial infarction (AMI); beta-blockers

## DENOMINATOR DESCRIPTION

Acute myocardial infarction (AMI) patients (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

## NUMERATOR DESCRIPTION

Acute myocardial infarction (AMI) patients who are prescribed a beta-blocker at hospital discharge

### Evidence Supporting the Measure

## EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## NATIONAL GUIDELINE CLEARINGHOUSE LINK

- [ACC/AHA 2007 guidelines for the management of patients with unstable angina/non ST-Elevation myocardial infarction.](#)
- [\(1\) ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines \(Committee to revise the 1999 guidelines for the Management of Acute Myocardial Infarction\). \(2\) 2007 focused update of the ACC/AHA 2004 guidelines for the management of patients with ST-elevation myocardial infarction. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines.](#)

### Evidence Supporting Need for the Measure

## NEED FOR THE MEASURE

Use of this measure to improve performance

## EVIDENCE SUPPORTING NEED FOR THE MEASURE

Anderson JL, Adams CD, Antman EM, Bridges CR, Califf RM, Casey DE Jr, Chavey WE 2nd, Fesmire FM, Hochman JS, Levin TN, Lincoff AM, Peterson ED, Theroux P, Wenger NK, Wright RS, Smith SC Jr, Jacobs AK, Adams CD, Anderson JL, Antman EM, Halperin JL, Hunt SA, Krumholz HM, Kushner FG, Lytle BW, Nishimura R, Ornato JP, Page RL, Riegel B, American College of Cardiology, American Heart Association Task Force on Practice Guidelines (Writing Committee, American

College of Emergency Physicians, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Association of Cardiovascular and Pulmonary Rehabilitation, Society for Academic Emergency Medicine. ACC/AHA 2007 guidelines for the management of patients with unstable angina/non-ST-Elevation myocardial infarction: a report of the American College of Cardiology. J Am Coll Cardiol 2007 Aug 14;50(7):e1-e157. [957 references]

[PubMed](#)

Antman EM, Anbe DT, Armstrong PW, Bates ER, Green LA, Hand M, Hochman JS, Krumholz HM, Kushner FG, Lamas GA, Mullany CJ, Ornato JP, Pearle DL, Sloan MA, Smith SC Jr. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction. A report of the Am Coll of Cardiol/American Heart Association Task Force on Practice Guidelines (Committee to revise the 1999 guidelines). Bethesda (MD): American College of Cardiology, American Heart Association; 2004. 211 p. [1398 references]

Jencks SF, Cuerdon T, Burwen DR, Fleming B, Houck PM, Kussmaul AE, Nilasena DS, Ordin DL, Arday DR. Quality of medical care delivered to Medicare beneficiaries: A profile at state and national levels. JAMA 2000 Oct 4;284(13):1670-6. [PubMed](#)

Krumholz HM, Anderson JL, Brooks NH, Fesmire FM, Lambrew CT, Landrum MB, Weaver WD, Whyte J, Bonow RO, Bennett SJ, Burke G, Eagle KA, Linderbaum J, Masoudi FA, Normand SL, Pina IL, Radford MJ, Rumsfeld JS, Ritchie JL, Spertus JA, American College of Cardiology, American Heart Association Task Force on Performance Measures, Writing Committee to Develop Performance Measures on ST-Elevation and non ST-Elevation MI. ACC/AHA clinical performance measures for adults with ST-elevation and non ST-elevation myocardial infarction. J Am Coll Cardiol 2006 Jan 3;47(1):236-65. [PubMed](#)

Krumholz HM, Radford MJ, Wang Y, Chen J, Heiat A, Marciniak TA. National use and effectiveness of beta-blockers for the treatment of elderly patients after acute myocardial infarction: National Cooperative Cardiovascular Project. JAMA 1998 Aug 19;280(7):623-9. [PubMed](#)

Smith SC Jr, Blair SN, Bonow RO, Brass LM, Cerqueira MD, Dracup K, Fuster V, Gotto A, Grundy SM, Miller NH, Jacobs A, Jones D, Krauss RM, Mosca L, Ockene I, Pasternak RC, Pearson T, Pfeffer MA, Starke RD, Taubert KA. AHA/ACC guidelines for preventing heart attack and death in patients with atherosclerotic cardiovascular disease: 2001 Update. A statement for healthcare professionals from the American Heart Association and the American College of Cardiology. Circulation 2001 Sep 25;104(13):1577-9. [PubMed](#)

Yusuf S, Peto R, Lewis J, Collins R, Sleight P. Beta blockade during and after myocardial infarction: an overview of the randomized trials. Prog Cardiovasc Dis 1985 Mar-Apr;27(5):335-71. [PubMed](#)

Yusuf S, Wittes J, Friedman L. Overview of results of randomized clinical trials in heart disease. I. Treatments following myocardial infarction. JAMA 1988 Oct 14;260(14):2088-93. [PubMed](#)

## State of Use of the Measure

### STATE OF USE

Current routine use

### CURRENT USE

Accreditation  
Collaborative inter-organizational quality improvement  
External oversight/Medicaid  
External oversight/Medicare  
Internal quality improvement  
National reporting  
Pay-for-performance

## Application of Measure in its Current Use

### CARE SETTING

Hospitals

### PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

### LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

### TARGET POPULATION AGE

Age greater than or equal to 18 years

### TARGET POPULATION GENDER

Either male or female

### STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

## Characteristics of the Primary Clinical Component

### INCIDENCE/PREVALENCE

Each year 900,000 people in the United States (U.S.) are diagnosed with acute myocardial infarction (AMI); of these, approximately 225,000 cases result in

death, and it is estimated that an additional 125,000 patients die before obtaining medical care.

## **EVIDENCE FOR INCIDENCE/PREVALENCE**

American College of Cardiology, American Heart Association Task Force on Practice Guidelines, Committee on Management of Acute Myocardial Infarction. Ryan TJ, Antman EM, Brooks NH, Califf RM, Hillis LD, Hiratzka LF, Rapaport E, Riegel B, Russell RO, Smith EE III, Weaver WD. ACC/AHA guidelines for the management of patients with acute myocardial infarction: 1999 Update. Bethesda (MD): American College of Cardiology (ACC), American Heart Association (AHA); 1999. Various p.

## **ASSOCIATION WITH VULNERABLE POPULATIONS**

Unspecified

## **BURDEN OF ILLNESS**

Cardiovascular disease, including acute myocardial infarction (AMI), is the leading cause of death in the United States (U.S.).

See also the "Incidence/Prevalence" field.

## **EVIDENCE FOR BURDEN OF ILLNESS**

French WJ. Trends in acute myocardial infarction management: use of the National Registry of Myocardial Infarction in quality improvement. Am J Cardiol 2000 Mar 9;85(5A):5B-9B; discussion 10B-12B. [PubMed](#)

## **UTILIZATION**

Cardiovascular disease, including acute myocardial infarction (AMI), is the primary disease category for hospital patient discharges.

## **EVIDENCE FOR UTILIZATION**

French WJ. Trends in acute myocardial infarction management: use of the National Registry of Myocardial Infarction in quality improvement. Am J Cardiol 2000 Mar 9;85(5A):5B-9B; discussion 10B-12B. [PubMed](#)

## **COSTS**

Unspecified

# **Institute of Medicine National Healthcare Quality Report Categories**

## **IOM CARE NEED**

## IOM DOMAIN

Effectiveness

### Data Collection for the Measure

## CASE FINDING

Users of care only

## DESCRIPTION OF CASE FINDING

Discharges, 18 years of age and older, with a principal diagnosis of acute myocardial infarction (AMI)

## DENOMINATOR SAMPLING FRAME

Patients associated with provider

## DENOMINATOR INCLUSIONS/EXCLUSIONS

### Inclusions

Discharges, 18 years of age and older, with an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code for acute myocardial infarction (AMI) as defined in Appendix A, Table 1.1, of the original measure documentation

### Exclusions

- Patients less than 18 years of age
- Patients who have a Length of Stay (LOS) greater than 120 days
- Patients with *Comfort Measures Only* documented
- Patients enrolled in clinical trials
- Patients discharged/transferred to another hospital for inpatient care
- Patients who left against medical advice or discontinued care
- Patients who expired
- Patients discharged/transferred to a federal health care facility
- Patients discharged/transferred to hospice
- Patients with a documented *Reason for No Beta-Blocker at Discharge*

## RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

## DENOMINATOR (INDEX) EVENT

Clinical Condition  
Institutionalization

#### **DENOMINATOR TIME WINDOW**

Time window brackets index event

#### **NUMERATOR INCLUSIONS/EXCLUSIONS**

##### **Inclusions**

Acute myocardial infarction (AMI) patients who are prescribed a beta-blocker at hospital discharge

##### **Exclusions**

None

#### **MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS**

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

#### **NUMERATOR TIME WINDOW**

Institutionalization

#### **DATA SOURCE**

Administrative data  
Medical record

#### **LEVEL OF DETERMINATION OF QUALITY**

Individual Case

#### **PRE-EXISTING INSTRUMENT USED**

Unspecified

### **Computation of the Measure**

#### **SCORING**

Rate

#### **INTERPRETATION OF SCORE**

Better quality is associated with a higher score

## **ALLOWANCE FOR PATIENT FACTORS**

Unspecified

## **STANDARD OF COMPARISON**

External comparison at a point in time  
External comparison of time trends  
Internal time comparison

## **Evaluation of Measure Properties**

### **EXTENT OF MEASURE TESTING**

The core measure pilot project was a collaboration among The Joint Commission, five state hospitals associations, five measurement systems, and 83 hospitals from across nine states. Participating hospitals collected and reported data for acute myocardial infarction (AMI) measures from December 2000 to December 2001.

Core measure reliability visits were completed the summer of 2001 at a random sample of 16 participating hospitals across 6 states.

Preliminary pilot test data reveals a mean rate of 90% for this measure.

### **EVIDENCE FOR RELIABILITY/VALIDITY TESTING**

The Joint Commission. A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): The Joint Commission; 40 p.

## **Identifying Information**

### **ORIGINAL TITLE**

AMI-5: beta-blocker prescribed at discharge.

### **MEASURE COLLECTION**

[National Hospital Inpatient Quality Measures](#)

### **MEASURE SET NAME**

[Acute Myocardial Infarction](#)

### **SUBMITTER**

Centers for Medicare & Medicaid Services  
Joint Commission, The



**DEVELOPER**

Centers for Medicare & Medicaid Services/The Joint Commission

**FUNDING SOURCE(S)**

All external funding for measure development has been received and used in full compliance with The Joint Commission's Corporate Sponsorship policies, which are available upon written request to The Joint Commission.

**COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE**

The composition of the group that developed the measure is available at:  
<http://www.jointcommission.org/NR/rdonlyres/40EDE16E-0ECC-45E0-8CEC-71C97FF515D0/0/CardiovascularConditionsClinicalAdvisoryPanel.pdf>.

**FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST**

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with the Conflict of Interest policies, copies of which are available upon written request to The Joint Commission and the Centers for Medicare & Medicaid Services.

**ENDORSER**

National Quality Forum

**INCLUDED IN**

Hospital Compare  
Hospital Quality Alliance  
National Healthcare Disparities Report (NHDR)  
National Healthcare Quality Report (NHQR)

**ADAPTATION**

Measure was not adapted from another source.

**RELEASE DATE**

2000 Aug

**REVISION DATE**

2009 Oct

**MEASURE STATUS**

This is the current release of the measure.

This measure updates a previous version: Specifications manual for national hospital quality measures, version 2.6b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2008 Oct. various p.

## **SOURCE(S)**

Specifications manual for national hospital inpatient quality measures, version 3.0c. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct 1. various p.

## **MEASURE AVAILABILITY**

The individual measure, "AMI-5: Beta-Blocker Prescribed at Discharge," is published in "Specifications Manual for National Hospital Inpatient Quality Measures." This document is available from [The Joint Commission Web site](#). Information is also available from the [Centers for Medicare & Medicaid Services \(CMS\) Web site](#). Check The Joint Commission Web site and CMS Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

## **COMPANION DOCUMENTS**

The following are available:

- A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the [CMS CART Web site](#). Supporting documentation is also available. For more information, e-mail CMS PROINQUIRIES at [proinquiries@cms.hhs.gov](mailto:proinquiries@cms.hhs.gov).
- The Joint Commission. A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): The Joint Commission; 40 p. This document is available from [The Joint Commission Web site](#).
- The Joint Commission. Attributes of core performance measures and associated evaluation criteria. Oakbrook Terrace (IL): The Joint Commission; 5 p. This document is available from [The Joint Commission Web site](#).
- Hospital compare: a quality tool provided by Medicare. [internet]. Washington (DC): U.S. Department of Health and Human Services; 2009 Oct 5; [accessed 2009 Oct 12]. This is available from the [Medicare Web site](#). See the related [QualityTools](#) summary.

## **NQMC STATUS**

This NQMC summary was originally completed by ECRI on February 7, 2003. This NQMC summary was updated by ECRI Institute on October 6, 2005, April 16, 2007, and October 26, 2007. The Joint Commission informed NQMC that this measure was updated on August 13, 2008 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on November 11, 2008. The information was verified by the Centers for Medicare & Medicaid Services on January 22, 2009. The Joint Commission informed NQMC that this measure was updated again on October 1, 2009 and provided an

updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on November 18, 2009. The information was verified by the Centers for Medicare & Medicaid Services on February 18, 2010.

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